IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jörg Kowalczyk, et al.
Serial No.: 10/555,714
Filed: July 27, 2006
Confirmation No.: 9742
Group Art Unit: 1623
Examiner: Layla D. Bland

For: METHOD FOR SELECTIVE CARBOHYDRATE OXIDATION USING SUPPORTED GOLD CATALYSTS

VIA EFS-WEB
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

SECOND DECLARATION UNDER 37 C.F.R. §1.132
OF DR. ALIREZA HAJI BEGLI

Sir:

1. I am the same individual who previously executed a declaration on June 23, 2009 which, I am informed, was submitted by our U.S. patent counsel to the U.S. Examiner in charge of this application together with a, "Response to Final Office Action" on June 25, 2009. My educational and employment are as set forth in my previous declaration. As, moreover, indicated therein, I am a co-inventor of the present application, employed by Südzucker Aktiengesellschaft Mannheim/Ochsenfurt, the owner by assignment of the application. I am making this declaration in support of the patentability of the claims presently pending in the application.

2. I have read and am familiar with the final Office Action issued by the Examiner having a mailing date of January 4, 2010, as well as the references cited therein, in combination, to reject the claims of the above-identified application. Furthermore, I have additionally reviewed and considered the matters discussed in the Advisory Action issued by the Examiner, bearing a mailing date of April 6, 2010.

3. In the Advisory Action, the Examiner responds to our contention that the presently claimed catalysts are more durable than the carbon supported gold catalysts disclosed in the cited prior art. The Examiner argues in response (see, e.g., pp. 2-3 of the Action), that the

proposed comparison, i.e., between our Example 3 and Figure 3c of Biella et al. (Journal of Catalysis) does not sufficiently demonstrate such greater durability for the claimed catalysts. The Examiner, in the portion of the Advisory Action bridging pp. 2-3, raises several objections to the proposed comparison. Subsequently, on p. 3, the Examiner argues that the results provided in Example 3 provided in our application are not commensurate in scope with the presently pending claims of our application.

4. Thus, by me or under my direction and control, a series of experiments was carried out to further support our contention that our claimed catalysts provide an unexpectedly higher level of activity and greater durability than the catalysts disclosed by Biella et al. These experiments were designed so as to take into account the Examiner's objections to the previous comparison as referred to in the paragraph above. The results of these experiments, as discussed below, serve to conclusively demonstrate that our claimed metal oxide supported gold catalysts exhibit unexpectedly higher activity and durability than the carbon supported gold catalysts described by Biella et al. To ensure that the results obtained provided a valid basis for comparison, the experiments were carried out under the same conditions as set forth on p. 243 in Section 2.3 ("Oxidation Procedure") of Biella et al. (Journal of Catalysis) at a controlled pH of 9.5.

5. Tables 1 and 2 attached at the end of this declaration demonstrate the significant improvement in activity and durability obtained with the metal oxide supported gold catalysts as presently claimed, in comparison with that obtained with the use of the carbon supported gold catalysts of Biella et al., namely: 1% gold catalyst, 4% by weight of glucose, glucose/gold ratio = 1000 (mol/mol), pH = 9.5 and temperature = 50°C.

6. The catalysts according to the claims of our application reach 100% conversion within 15 minutes (see Tables 1 and 2), which corresponds to double the activity (i.e., the degree of conversion over time) in comparison to the catalysts of Biella et al. (Journal of Catalysis). Moreover, the significantly higher activity exhibited by our claimed catalysts remains unchanged following 10 repeated batches. In each batch, a complete conversion of glucose was obtained after no more than 20 minutes. The conversion rates of the different batches are shown in Table 1. In contrast to the values shown, the loss of activity demonstrated by the catalysts according to Biella et al. (Journal of Catalysis) is significant, even at the controlled pH of 9.5. As shown, the activity of the Biella et al. catalysts is 2.5 fold lower after four runs than after the initial run.

7. The substantial differences demonstrated in the attached Tables thus clearly demonstrate to a skilled artisan in this field that the catalysts according to the presently pending claims exhibit an unexpectedly higher activity and greater durability than those produced according to the teachings of Biella et al.

8. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 11.06.2010

By: A. Haji...

Dr. Alireza Haji Begli

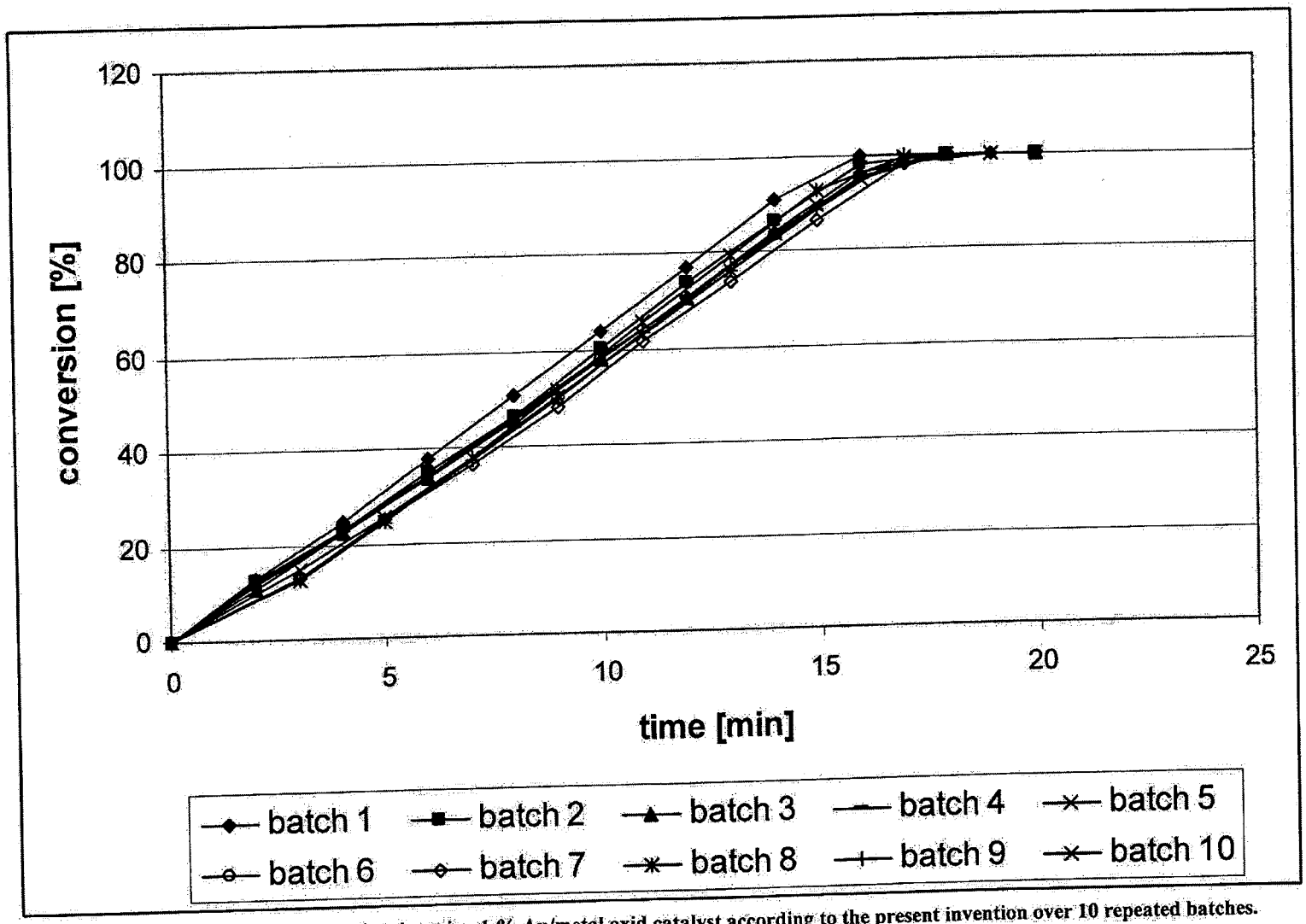

Figure 1: conversion of glucose versus time by using 1 % Au/metal oxid catalyst according to the present invention over 10 repeated batches.

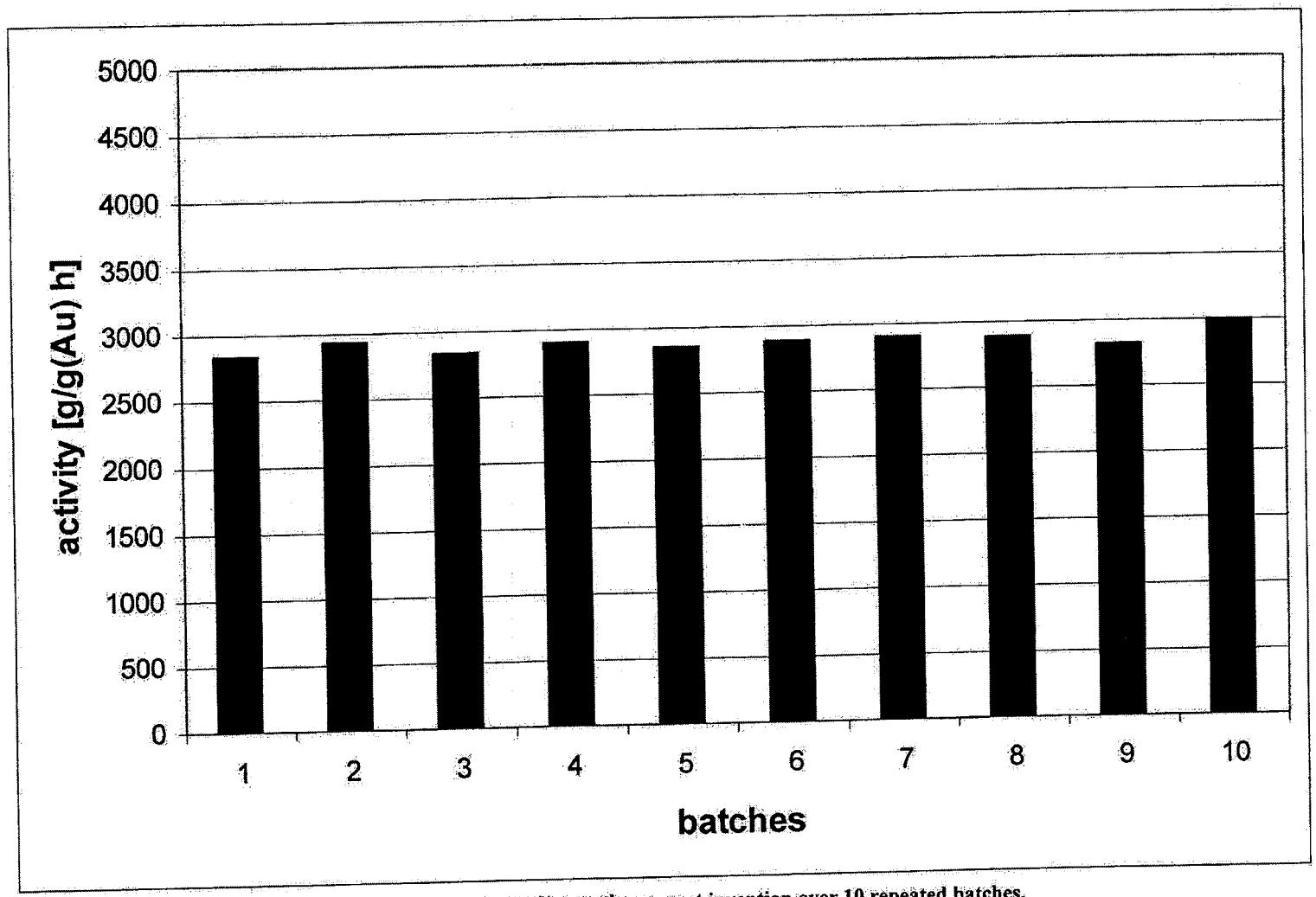

Figure 2: activity of the 1 % Au/metal oxide catalyst according to the present invention over 10 repeated batches.